

Abstract

A piston mechanism comprises a crankcase (4), a crankshaft (7) with three crankpins (48, 50, 51), a cylinder (1) with diverging pistons (5, 6) defining working chambers (10, 11, 12, 13) having inlet (14) and outlet (15) openings, and two connecting members (27, 28), one of which cooperates with the middle crankpin (48) and the other with the two outer crankpins (50, 51). In the body of the cylinder (1) there are guide channels (16, 17) provided, in which connecting rods (19, 20) are arranged in alternating sequence, which are attached to one (27) or the other (28) connecting member by their bases, forming two synchronous groups of connecting rods. The guide channels (16, 17) are provided with through-cuts (18) in the working surface of the cylinder with outlets into its cavity so that the faces (21) of the connecting rods of the synchronous groups facing the cavity of the cylinder form movable parts of its working surface. The pistons (5, 6) are attached by their peripheries to the lateral faces (21) of the connecting rods of one (19) or the other (20) synchronous group sequentially and spaced from each other, forming two movable rigid carcasses inserted in one another, „connecting member - synchronous group of connecting rods - pistons“, moving in opposite directions. This construction allows the arrangement of a number of diverging pistons (5, 6) in the cavity of a cylinder, forming working chambers (10, 11, 12, 13) between them, in which different strokes of independent working cycles are carried out simultaneously.

LIST

of reference numerals in the drawings accompanying the invention
 „Piston mechanism with diverging pistons“

Cylinder	1
Adjustable lid	2
Removable insert	3
Crankcase	4
Diverging pistons	5, 6
Crankshaft	7
Bearing assembly	8
Bearing	9
Working chambers	10, 11, 12, 13
Inlet openings of the working chambers 10, 11, 12, 13	14
Outlet openings of the working chambers 10, 11, 12, 13	15
Guide channels	16, 17
Through-cuts	18
Connecting rods	19, 20
Narrow lateral face of the connecting rods 19, 20	
facing the cavity of the cylinder	21
Wide face of the connecting rods 19, 20	22
Narrow lateral face of the connecting rods	
facing away from the cavity of the cylinder	23
Shoulders	24
Protrusions on the connecting rods 19	25
Protrusions on the connecting rods 20	26
Inner connecting member	27
Outer connecting member	28
Lower plate of the inner connecting member 27	29
Stand of the lower plate 29	30
Upper plate of the inner connecting member 27	31
Radial cuts on the upper plate 31	32
Recesses in the plates 29, 31	33

Securing grips on the connecting rods 19	34
Bolts of the connecting member 27	35
Central opening of the outer connecting member 28	36
Lower plate of the outer connecting member 28	37
Diametric stands of the lower plate 37	38
Upper plate of the outer connecting member 28	39
Radial cuts in the upper plate 39	40
Recesses in the outer connecting member 28	41
Securing grips on the connecting rods 20	42
Bolts of the connecting member 28	43
Lid of the cylinder	44
Additional working chamber	45
Annular engaging grooves	46
Annular grooves on the pistons 5, 6	47
Middle crankpin	48
Central crank-hinge frame	49
Outer crankpins	50, 51
Lateral crank-hinge frames	52, 53
Slide bar	54
Cross bar	55
Support	56
Coupling bolts	57
Stand of the frames 49, 50, 51	58
Central opening of the slide bar	59
Constructive parts of the slide bar	60
Protrusions of the slide bar	61
Bolts of the slide bar	62
Pin	63
Guide plates	64
Regulating bolts	65
Spark plug	66
Inlet opening of the working chamber 45	67
Outlet opening of the working chamber 45	68